

# Mathematics

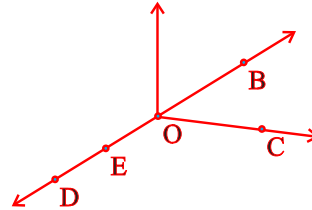
## (Chapter – 4) (Basic Geometrical Ideas) (Class – VI)

### Exercise 4.1

#### Question 1:

Use the figure to name:

- (a) Five points
- (b) A line
- (c) Four rays
- (d) Five line segments



#### Answer 1:

- (a) Five points are: O, B, C, D, E
- (b) A line:  $\overline{DE}$ ,  $\overline{DB}$ ,  $\overline{OE}$ ,  $\overline{OB}$
- (c) Four rays:  $\overrightarrow{OD}$ ,  $\overrightarrow{OE}$ ,  $\overrightarrow{OC}$ ,  $\overrightarrow{OB}$
- (d) Four line segments:  $\overline{DE}$ ,  $\overline{OE}$ ,  $\overline{OC}$ ,  $\overline{OB}$ ,  $\overline{OD}$

#### Question 2:

Name the line given in all possible (twelve) ways, choosing only two letters at a time from the four given.



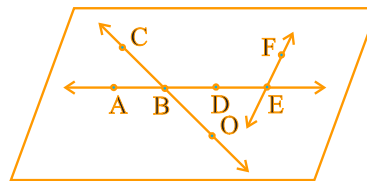
#### Answer 2:

$\overline{AB}$ ,  $\overline{AC}$ ,  $\overline{AD}$ ,  $\overline{BC}$ ,  $\overline{BD}$ ,  $\overline{CD}$ ,  $\overline{BA}$ ,  $\overline{CA}$ ,  $\overline{DA}$ ,  $\overline{CB}$ ,  $\overline{DB}$ ,  $\overline{DC}$

#### Question 3:

Use the figure to name:

- (a) Line containing point E.
- (b) Line passing through A.
- (c) Line on which O lies.
- (d) Two pairs of intersecting lines.



#### Answer 3:

- (a) A line containing E =  $\overline{AE}$  or  $\overline{FE}$
- (b) A line passing through A =  $\overline{AE}$  or  $\overline{DE}$
- (c) A line on which O lies =  $\overline{CO}$  or  $\overline{OC}$
- (d) Two pairs of intersecting lines are:  $\overline{AD}$ ,  $\overline{CO}$  and  $\overline{AE}$ ,  $\overline{FE}$

#### Question 4:

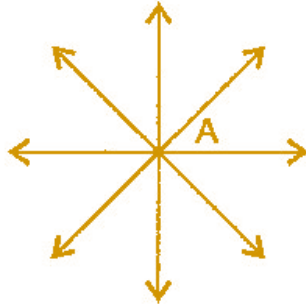
How many lines can pass through:

(a) one given point?

(b) two given points

#### Answer 4:

(a) Infinite number of lines can pass through one given point.



(b) Only one line can pass through two given points.



#### Question 5:

Draw a rough figure and label suitably in each of the following cases:

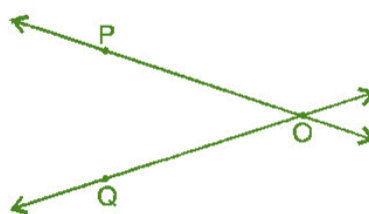
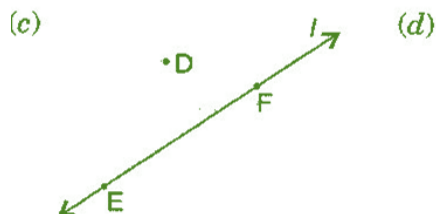
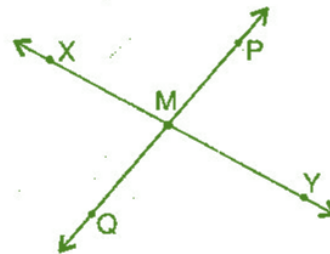
(a) Point P lies on  $\overline{AB}$ .

(b)  $\overline{XY}$  and  $\overline{PQ}$  intersect at M.

(c) Line  $l$  contains E and F but not D.

(d)  $\overline{OP}$  and  $\overline{OQ}$  meet at O.

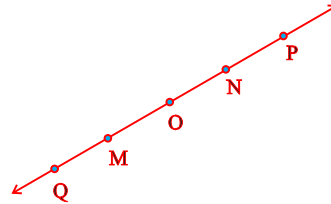
#### Answer 5:



### Question 6:

Consider the following figure of line  $\overleftrightarrow{MN}$ . Say whether following statements are true or false in the context of the given figure:

- (a) Q, M, O, N, P are points on the line  $\overleftrightarrow{MN}$ .
- (b) M, O, N are points on a line segment  $\overline{MN}$ .
- (c) M and N are end points of line segment  $\overline{MN}$ .
- (d) O and N are end points of line segment  $\overline{OP}$ .
- (e) M is one of the end points of line segment  $\overline{QO}$ .
- (f) M is point on ray  $\overrightarrow{OP}$ .
- (g) Ray  $\overrightarrow{OP}$  is different from ray  $\overrightarrow{OM}$ .
- (h) Ray  $\overrightarrow{OP}$  same as ray  $\overrightarrow{OM}$ .
- (i) Ray  $\overrightarrow{OM}$  is not opposite to ray  $\overrightarrow{OP}$ .
- (j) O is not an initial point of  $\overline{NP}$  and  $\overline{NM}$ .



### Answer 6:

- (a) True
- (b) True
- (c) True
- (d) False
- (e) False
- (f) False
- (g) True
- (h) False
- (i) False
- (j) False
- (k) True

## Exercise 4.2

### Question 1:

Classify the following curves as (i) Open or (ii) Closed.



### Answer 1:

- (a) Open curve
- (b) Closed curve
- (c) Open curve
- (d) Closed curve
- (e) Closed curve

### Question 2:

Draw rough diagrams to illustrate the following:

- (a) Open curve
- (b) Closed curve

### Answer 2:

- (a) Open curves:



- (b) Closed curves

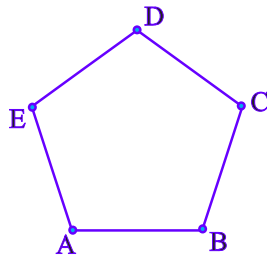


### Question 3:

Draw any polygon and shade its interior.

#### Answer 3:

Polygon ABCDE

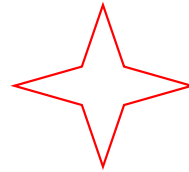


### Question 4:

Consider the given figure and answer the questions:

(a) Is it a curve?

(b) Is it closed?



#### Answer 4:

(a) Yes, it is a curve.

(b) Yes, it is closed.

### Question 5:

Illustrate, if possible, each one of the following with a rough diagram:

(a) A closed curve that is not a polygon.

(b) An open curve made up entirely of line segments.

(c) A polygon with two sides.

#### Answer 5:

(a)



(b)



(c) Polygon with two sides cannot be draw.

